

CLAIMS

1. A process for producing a flat product made of a zirconium alloy having a Kearns factor FT of between  
5 0.30 and 0.70, characterized in that:

- an ingot of zirconium alloy with the following composition, in percentages by weight, is smelted:

Nb = 0.5 to 3.5%

Sn = 0 to 1.5%

10 Fe = 0 to 0.5%

Cr + V = 0 to 0.3%

S = 0 to 100 ppm

O = 0 to 2000 ppm

Si = 0 to 150 ppm,

15 the balance being zirconium and impurities resulting from the smelting;

- said ingot is formed;

- said formed ingot undergoes one or more hot-rolling passes in order to obtain a flat product,  
20 the final of said hot-rolling passes being carried out between 810 - 20Nb% and 1100°C and not being followed by any quenching operation;

- optionally, said flat product undergoes an annealing operation at a temperature not exceeding  
25 800°C; and

- the flat product undergoes one or more cold-rolling/annealing cycles, said annealing operations not taking place above 800°C.

30 2. The process as claimed in claim 1, characterized in that the Nb content of the alloy is from 0.5 to 1.5%.

3. The process as claimed in either of claims 1 and  
35 2, characterized in that the final of said hot-rolling passes is carried out between 820 - 20Nb% and 1100°C.

4. The process as claimed in one of claims 1 to 3,

characterized in that said final hot-rolling pass is carried out at a temperature within  $\pm 130^{\circ}\text{C}$  of the temperature at which the alloy undergoes the  $\alpha + \beta \rightarrow \beta$  transition.

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5. The process as claimed in claim 4, characterized in that said final hot-rolling pass is carried out between  $900$  and  $1030^{\circ}\text{C}$ .

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6. A flat product made of a zirconium alloy having a Kearns factor FT of between  $0.30$  and  $0.70$ , characterized in that it is obtained by the process as claimed in one of claims 1 to 5.

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7. A spacer grid for retaining the fuel rods in a light-water nuclear power plant reactor, characterized in that it is obtained by the forming of a flat product as claimed in claim 6.